Spring 4-2012

Wind Speed Data Logger

Chuck Craft

Wind Speed Data Logger
Final Project Report

Date: April 23, 2012

Student: Chuck Craft
Faculty Advisor: Professor Paul I-Hai Lin
Class Instructor: Professor Paul I-Hai Lin

Submitted to:
Paul I. Lin, Professor of ECET 491 Senior Design Phase II

Department of Electrical and Computer Engineering Technology
College of Engineering, Technology, and Computer Science
Indiana University-Purdue University Fort Wayne, Indiana

ABSTRACT:

The desire to reduce monthly electric bills has fueled interest in alternative power generation. Wind generator technology has provided an alternative to relying solely on the power grid for electricity. Power companies have invested significant resources erecting massive wind generator installations to tap into the limitless and readily available supply of energy, but this technology is not only for industry. Wind generator technology has been scaled to support residential installations, but the technology is not cheap. A residential wind generator can cost $5,000 to $25,000 to install and must be located properly to ensure maximum pay-back on investment.

Selecting the optimal site to install a wind generator requires knowledge of wind patterns at the prospective site. Obstructions such as trees and structures can have a dramatic effect on the ability of a wind generator to produce electricity. Other factors such as tower height and terrain also influence wind patterns. The most reliable way to select a location for a wind generator is to erect a test tower and monitor wind patterns for a period of time. Utility companies perform this type of site survey using expensive towers and wind monitoring equipment, but this technique has traditionally been too expensive to use for residential applications.

The Wind Speed Data Logger project provides a prototype for an inexpensive, easy to use tool to allow economical residential site surveys prior to installing wind generators. The homeowner can now spend under $200 to determine the proper location for a wind generator before investing significant funds for a permanent installation.

KEYWORDS:

Liquid Crystal Display (LCD), Secure Digital memory (SD memory), Schmitt trigger, Application Programming Interface (API), Real-Time Operating System (RTOS)

Table of Contents

LIST OF ILLUSTRATIONS:

LIST OF TABLES: